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Human Effectiveness visor offers clear improvement

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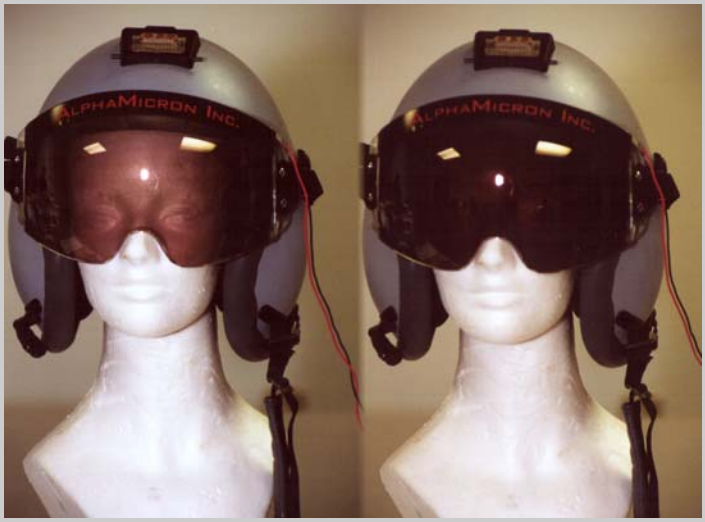
WRIGHT-PATTERSON AIR FORCE BASE, Ohio — A Phase II Small Business Innovative Research (SBIR) project within the Human Effectiveness Directorate produced a visor for flight helmets that varies its tint electronically. This unprecedented capability will allow pilots to optimize their vision and enhance the visibility of helmet-mounted displays (HMDs).

A collaboration between the Visual Display Systems Branch and AlphaMicron, Inc., Kent, Ohio, developed a visor for the flight helmet that varies its tint from 15-65 percent simply by turning a knob. The visor can also adjust itself automatically as lighting conditions change and runs for many hours off of a small battery. The original purpose was to increase the contrast of HMD images under bright daytime viewing conditions, but the visor is useful also as a standalone alternative to conventional, fixed-tint visors. Commercial applications of the technology include sunglasses, ski goggles and visors for motorcycle helmets.



Electronic flight helmet visor

The visor uses a thin layer of liquid crystals to control the orientation of dichroic dye molecules. This design provides fast switching speed, high optical quality, a wide array of available tints, and allows the visor to revert to its lightest-tint state if power is lost. @